

DETAILED ACTION

Response to Arguments/Remarks

1. Applicant's amendments to claims 1 and 3, and the addition of new claim 6, filed on 06 August 2007, is noted and acknowledged.
2. Also, the terminal disclaimer to the previous obvious double patenting rejection in the action from 5 May 2007, is acknowledged and the rejection withdrawn.
4. Further, all prior claim objections and (art and non-art) rejections are hereby withdrawn.
5. Accordingly new grounds of rejection have been made in the instant action and **this action is made non-final.**

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1- 5 are rejected under 35 U.S.C. 102(b) as being anticipated by US Pat. No. 5,924,993 to Hadjicostis (**Hadjicostis**).

In Reference to Claim 1

Hadjicostis discloses a digital receive-focusing apparatus for use in an ultrasound imaging system (**see abstract**) comprising a multichannel ultrasound signal multiplexing means and means for digitally processing and compensating the multiplexed ultrasound. (**see abstract and figures 1 and 2, reference marks 10 and 10-1 – 10-4**)

In Reference to Claims 2 - 5

Hadjicostis discloses a digital receive-focusing apparatus for use in an ultrasound imaging system wherein:

a) Re claim 2 -- the means for multiplexing includes an analogue multiplexer. (**see abstract and claim 1**)

b) Re claim 3 – means for digitally processing includes an analogue-to-digital converter for converting configured to convert said multiplexed ultrasound signal into a digital signal and a compensator for compensating configured to compensate said digital signal by filtering and time-delaying said digital signal. (**see abstract, column 3,**

lines 37 - 67 and claims 1 and 3)

c) Re claim 4 -- wherein the plurality of channel modules are embodied as an Application Specific Integrated Circuit. **(see abstract and figure 3)**

d) Re claim 5 -- wherein the plurality of channel modules are arranged in parallel so that said digital receive-focusing apparatus can operate in a multi-channel multi-beam mode. **(see abstract and column 4, lines 10 - 18)**

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over US Pat. No. 5,924,993 to Hadjicostis (**Hadjicostis**).

In Reference to Claim 6

Hadjicostis has been shown to teach a digital receive-focusing apparatus for use in an ultrasound imaging system comprising a multichannel ultrasound signal multiplexing means and means for digitally processing and compensating the multiplexed ultrasound and all other claims 6 elements except for the dual stage first and second delay. While, Hadjicostis does disclose a dual stage delay means with pre- (first) and post (second) compensated delay components (**i.e. digital filter, time delay and multiplier and adder means; see claims 1,3 and 6 respectively**), he does not explicitly disclose where the multiplier employs the compensated delayed signal by an apodization function. **It is well known in the art and would be obvious to one of ordinary skill** to employ an apodization function for user or design specific signal conditioning or customization and this is commonly done to signals used in ultrasound imaging.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure Angelsen et al., Chiang et al., Clark, Corl, Deitrich, Hamilton et al., Ladabaum, Mallart et al., McLaughlin et al., Miller-Jones, Nohara et al., O'Donnell et al., Thiele et al., Thomas et al., and Umemura et al., have been included because they respectively encompass systems and methods for ultrasound imaging that employ ultrasound signal selection and conditioning similar in scope to those described by the applicant for the proposed invention.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Salieu M. Abraham whose telephone number is (571) 270-1990. The examiner can normally be reached on Monday through Thursday 9:30 am - 7:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Casler can be reached on (571) 272-4956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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